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IMPROVEMENT IN RIGHT ATRIAL FUNCTION IS ASSOCIATED WITH IMPROVED FUNCTIONAL CAPACITY IN PULMONARY ARTERIAL HYPERTENSION

Moderated Poster Contributions
Poster Sessions, Expo North
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Background: Patients with pulmonary arterial hypertension (PAH) develop progressive right atrial (RA) remodeling and reduced RA function. RA emptying fraction (RAEF) is a simple measure of RA function. The significance of temporal changes in RAEF have not been investigated in PAH.

Methods: We identified patients with PAH treated at Stanford Hospital from 2002-2011 with serial echocardiograms performed 6-18 months apart. We required that all patients were treatment naïve at the time of the baseline echocardiogram and that clinical assessment and six minute walk distance (6MWD) were performed within 1 month of both echocardiograms. On baseline and follow up echocardiograms, we calculated total, passive and active RAEF from the maximal RA volume, the minimal RA volume and the RA volume coincident with the p-wave. The tricuspid annular plane systolic excursion (TAPSE) was also measured. We investigated associations between the change in measures of RAEF and TAPSE on 6MWD and other clinical and echocardiographic parameters.

Results: Our total cohort consisted of 31 treatment-naïve PAH patients. The mean age was 41.3±13.7 years and 69% of the population was female. The mean time between echocardiograms was 10.7±2.8 months. The mean increase in total, passive and active RAEF was 20.3±15.2%, 9.3±14.3% and 16.5±16.6%, respectively. The mean increase in TAPSE was 0.29±0.59 mm. Six minute walk distance increased by 90.9±119.7 meters. NYHA class improved in 67% of patients. Active RAEF and TAPSE were associated with each other (P=0.03). Both were associated with increase in 6MWD (P=0.04 for active RAEF and P=0.03 for TAPSE). When analyzing by treatment regimen, the mean difference in change in active RAEF for prostanoid containing regimens vs. non-prostanoid containing regimens was 13.4% (95% CI 0.5-26.2%, P=0.04).

Conclusions: In patients with PAH, increases in active RAEF and TAPSE on follow up echocardiogram are associated with an increase in 6MWD. The increase in active RAEF is greater with prostanoid therapies. Evaluation of parameters of right atrial emptying in larger populations is warranted to better characterize their prognostic utility.